

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Original): ~~A method for removing one or more~~ Method for removal of
metal cations contained in a liquid, comprising:

~~in which said contacting the liquid is brought into contact~~ at a temperature higher than
or equal to 60°C, with a chelating ion exchange resin formed from polyazacycloalkane
grafted on a solid support to chelate the metal cations on the resin, and
~~said conditioning the resin having been conditioned, previously~~ at a pH of 4 to 6 prior
to said contacting, ~~at a pH of 4 to 6.~~

Claim 2 (Currently Amended): ~~Method~~ The method according to Claim 1 in which
the contacting is carried out at a temperature of 60 to 80°C.

Claim 3 (Currently Amended): ~~Method~~ The method according to Claim 1 in which
the conditioning is carried out at a pH of is 4 to 5.

Claim 4 (Currently Amended): ~~Method~~ The method according to Claim 1 in which
the conditioning ~~of said resin~~ is carried out by contacting said resin with a buffer solution, in
which the pH is 4 to 6, wherein the conditioning may be preceded, followed or both preceded
and followed, by a rinsing of the resin with a major solvent of the liquid ~~to be treated.~~

Claim 5 (Currently Amended): ~~Method~~ The method according to Claim 1 which is
carried out continuously,

wherein said resin is present ~~being placed~~ in at least one column,

and wherein the contacting is carried out by passing ~~passed through by~~ a current of the liquid ~~to be treated through the column.~~

Claim 6 (Currently Amended): ~~Method~~ The method according to Claim 1, further comprising, in addition, a regeneration step of said regenerating the resin, when the latter after the resin is saturated with chelated metal cations ~~by the fixed metals.~~

Claim 7 (Currently Amended): ~~Method~~ The method according to Claim 6 ~~Claim 5~~, further comprising:

regenerating the column in which said regeneration is carried out by passing a regeneration solution through the column(s) in the a reverse direction from the direction of circulation ~~passing of the liquid to be treated.~~

Claim 8 (Currently Amended): ~~Method~~ The method according to Claim 7 in which said regeneration solution is one or more acid solutions.

Claim 9 (Currently Amended): ~~Method~~ The method according to Claim 7 ~~in which at the end of the regeneration step, said regeneration solution containing the metals initially fixed on the resin is treated to recover the metals.~~, further comprising:

treating the regeneration solution after the regenerating to recover the metal cations.

Claim 10 (Currently Amended): ~~Method~~ The method according to Claim 1, further comprising a prior step for treatment of, :

treating the liquid by prior to the contacting, with an ion exchanger or organic or mineral adsorbent grafted on a support different from said polyazacycloalkane resin-~~grafted on a support~~.

Claim 11 (Currently Amended): ~~Method~~ The method according to Claim 10 ~~in which~~ , wherein the contacting is carried out with an adsorbent and said adsorbent is one or more silica gels.

Claim 12 (Currently Amended): ~~Method~~ The method according to Claim 10 ~~in which~~ , wherein the contacting is carried out with an ion exchanger and said ion exchanger is a polyacrylate resin.

Claim 13 (Currently Amended): ~~Method~~ The method according to Claim 10 in which said ~~prior treatment step~~ treating is carried out continuously, wherein said ion exchanger or adsorbent ~~being placed~~ is present in at least one column ~~passed through by~~ and the contacting is carried out by passing a current of the liquid to be treated and through at least one column positioned upstream of ~~said~~ a column filled with the resin.

Claim 14 (Currently Amended): ~~Method~~ The method according to Claim 11, further comprising:

regenerating the resin saturated with chelated metal cations with a regeneration solution, and

regenerating in which said ion exchanger or adsorbent ~~is regenerated~~ when it is saturated ~~by the fixed metals~~ with chelated metal cations.

wherein the regeneration of the resin and the ion exchanger or adsorbent is carried out
under the same conditions as ~~the resin~~ and at the same time as ~~regeneration of the latter~~ and
with the same regeneration solution.

Claim 15 (Currently Amended): ~~Method~~ The method according to Claim 1 in which
said metal cations ~~to be removed~~ are one or more metal cations selected from the group
consisting of transition metals, heavy metals, metals from group IIIA of the periodic table,
lanthanides, actinides and alkaline-earth metals.

Claim 16 (Currently Amended): ~~Method~~ The method according to Claim 13 in
which said metal cations are one or more cations selected from the group consisting of
cations of U, Pu, Am, Ce, Eu, Al, Gd, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ag, Cd, B, Au, Hg, Pb,
As, Ca, Sr, Mg, Be, Ba and Ra.

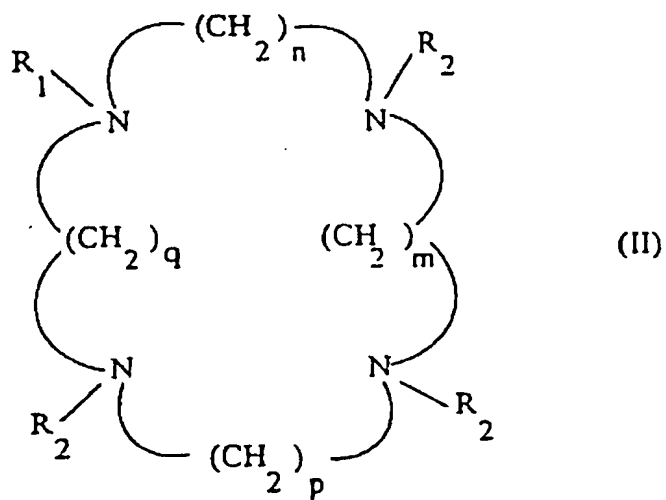
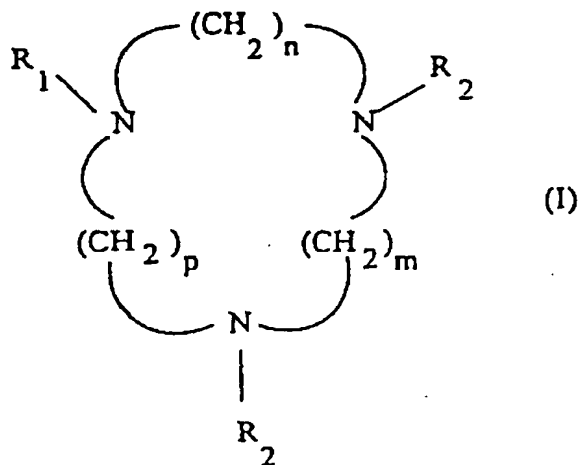
Claim 17 (Currently Amended): ~~Method~~ The method according to Claim 1 in which
the ~~treated~~ liquid is an aqueous liquid.

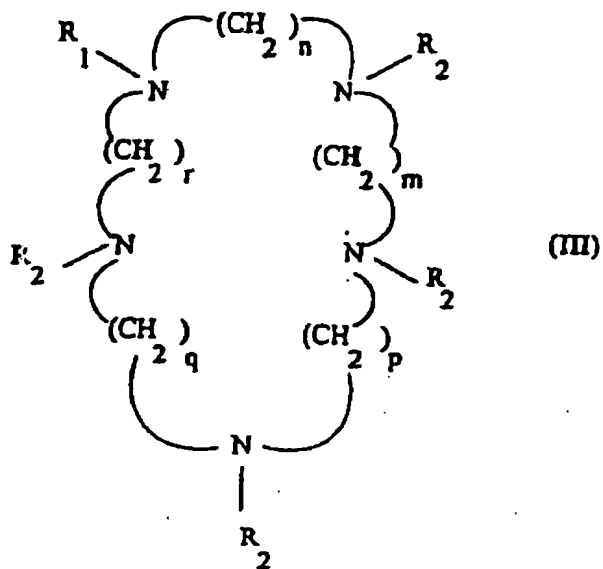
Claim 18 (Currently Amended): ~~Method~~ The method according to Claim 1 in which
the ~~treated~~ liquid is a radioactive aqueous effluent with low activity.

Claim 19 (Currently Amended): ~~Method~~ The method according to Claim 18 in
which said radioactive aqueous effluent is ~~the~~ an aqueous effluent with low activity
originating from ~~the~~ an industrial evaporator of ~~the~~ a treatment installation of effluents from a
nuclear installation.

Claim 20 (Currently Amended): ~~Method~~ The method according to Claim 16 in which the liquid is a biological fluid and the metal cations removed are copper and aluminium.

Claim 21 (Currently Amended): ~~Method~~ The method according to Claim 1 in which said chelating ion exchange resin formed from polyazacycloalkane grafted on a solid support ~~fulfils~~ fulfills one of the three formulas (I), (II) and (III) below:





in which n, m, p, q, r which may be the same or different are equal to 2 or 3, R₁ is a solid support, R₂ represents the hydrogen atom or the (CH₂)₂-R₃ group, R₃ being a functional group chosen from the group formed by COOH, CONH₂, CH₂OH, CN or COOR₄, R₄ representing an alkyl or benzyl group, or R₂ represents the -(CH₂)-R₅ group, R₅ representing COOH or PO₃R₆, R₆ representing an alkyl group or hydrogen.

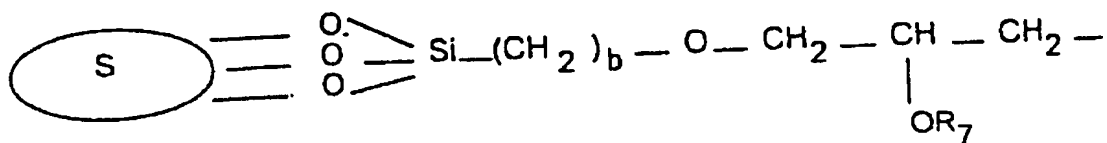
Claim 22 (Currently Amended): ~~Method~~ The method according to Claim 1 in which the solid support is an organic polymer that may or may not be crosslinked.

Claim 23 (Currently Amended): ~~Method~~ The method according to Claim 22 in which the solid support is a residue of an organic polymer that may or may not be crosslinked with an alkyl halide ~~end~~.

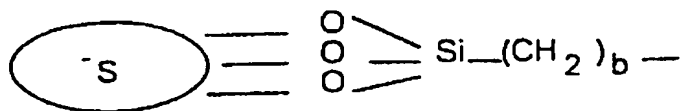
Claim 24 (Currently Amended): ~~Method~~ The method according to Claim 23 in which the solid support is a residue of chloromethyl polystyrene.

Claim 25 (Currently Amended): ~~Method~~ The method according to Claim 24 in which ~~the~~ a grain size distribution of said chloromethyl polystyrene is between 20 and 400 mesh.

Claim 26 (Currently Amended): ~~Method~~ The method according to Claim 21 in which R1 is a solid support ~~derived from silica~~ fulfilling of formula:



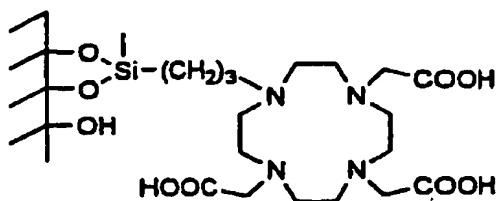
wherein ~~in the~~ formula:



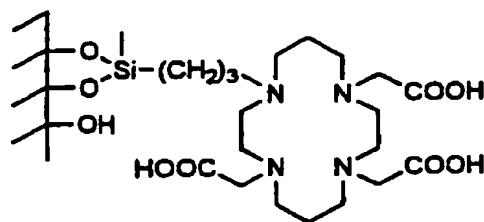
S represents a silica gel, b is between 1 and 4 and R7 is an alkyl group or a hydrogen atom.

Claim 27 (Currently Amended): ~~Method~~ The method according to Claim 26 in which ~~the grains~~ a grain size distribution of the solid support ~~derived from silica~~ is between 20 and 400 mesh .

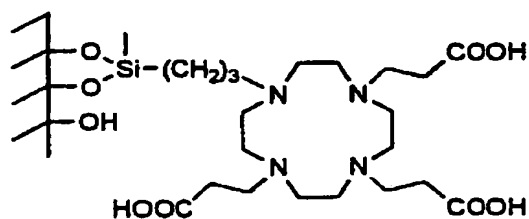
Claim 28 (Currently Amended): ~~Method~~ The method according to Claim 21 in which said resin is at least one selected from the group consisting of:



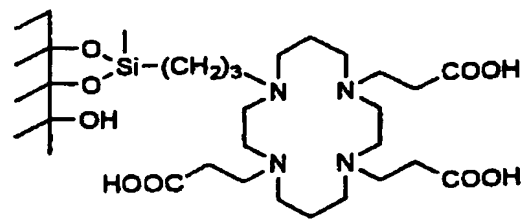
Si2222trA



Si2323trA



Si2222trPr



Si2323trPr

Claim 29 (Currently Amended): ~~Method~~ The method according to Claim 1 in which said solid support is silica, and said resin is prepared by a method in which silica is reacted with a spacer arm, then with azacycloalkane and then the substitution of the free amine functions of the polyazacycloalkane is carried out.

Claim 30 (Currently Amended): ~~Method~~ The method according to Claim 1 in which said solid support is silica and said resin is prepared by a method in which first, an unsubstituted polyazacycloalkane is reacted with a spacer arm, then said polyazacycloalkane carrying a spacer arm is grafted on the silica.

Claim 31 (Currently Amended): ~~Method~~ The method according to Claim 30 further comprising functionalizing said polyazacycloalkane carrying a spacer arm prior to its grafting on the silica.

Claim 32 (Currently Amended): ~~Method~~ The method according to Claim 30 in which the amount of polyazacycloalkane grafted per unit weight of solid support is greater than 0.4 ~~mmol.g⁻¹~~ mmol/g.

Claim 33-35 (Canceled).

Claim 36 (Currently Amended): ~~Method~~ The method according to Claim 6, further comprising:
regenerating the resin in which said regeneration is carried out by passing a regeneration solution through ~~the column(s)~~ at least one column comprising the resin in the a reverse direction from the direction ~~of circulation~~ of the passing of the liquid ~~to be treated~~.

Claim 37 (Currently Amended): ~~Method~~ The method according to Claim 17, wherein the liquid is a biological fluid and the metal cations removed are copper and aluminum.

Claim 38 (Previously Presented): The method according to Claim 4, wherein the conditioning of said resin is carried out by contacting said resin with an aqueous buffer solution and the major solvent is distilled water.

Claim 39 (Previously Presented): The method according to Claim 8, wherein one or more of the acid solutions is a nitric acid solution.

Claim 40 (Previously Presented): The method according to Claim 20, wherein the biological fluid is blood.

Claim 41 (Currently Amended): The method according to Claim 23, wherein the alkyl halide ~~end~~ is an alkyl chloride ~~end~~.

Claim 42 (Previously Presented): The method according to Claim 25, wherein the grain size distribution of said chloromethylpolystyrene is between 20 and 70 mesh.

Claim 43 (Previously Presented): The method according to Claim 26, wherein b is equal to 3.

Claim 44 (Previously Presented): The method according to Claim 27, wherein the grain size distribution of the solid support is between 20 and 70 mesh.

Claim 45 (Previously Presented): The method according to Claim 29, wherein the substitution of the free amine functions is carried out by a carboxylic function group.

Claim 46 (Previously Presented): The method according to Claim 30, wherein the polyazacycloalkane is at least one of a cyclam and a cyclene.

Claim 47 (Previously Presented): The method according to Claim 32, wherein the solid support is silica.

Claim 48 (Canceled).

Claim 49 (Previously Presented): The method according to Claim 37, wherein the biological fluid is blood.

BASIS FOR THE AMENDMENT

Claims 1-32, 36-47 and 49 are active in the present application. The claims have been amended for matters of form. No new matter is believed to have been added by this amendment.